

has not been generally accepted as yet, but no other origin has been suggested, except that it was Neuropterous. The same is true of the Hymenoptera which have often been placed nearer to the Diptera and with none or very vague ideas as to their origin. It seems to the author that the evidence of the wing venation in each of these three orders is unimpeachable as all recognize it is in the case of the Lepidoptera.

The scheme just presented illustrating the phylogeny and primary classification of insects, while not an elective or compromise measure in any particular, does express more nearly a consensus of the opinions of recent students of the subject than any thus far presented, and illustrates the fact that the most essential differences of opinion between authors is the same as in all other attempts at classification, the differences between those who contend for few or for many groups.

Ctenothrips, new Genus.

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Head about as wide as long. Eyes prominent; vertex elevated between them. Ocelli present and large in size. Antennæ eight-segmented. Prothorax strongly rounded in outline, when viewed from above or below; two long spines at each posterior angle; no long spines at the anterior angles. Wings well developed, but very narrow for length; each one of the fore pair with two longitudinal, but not prominent, veins; these veins and the costa set with prominent spines. Surface of abdomen reticulated. Lateral portions of the posterior margin of eighth abdominal segment dentate and strongly produced posteriorly. Posterior margin of the dorsal plate of the eighth segment comblike (Fig. 2). Tenth segment split above; only moderately conical in form. Ovipositor well developed.

Generic name derived from (*κτεῖς*, comb; *θρῦψ* thrips).

This genus shows certain affinities with both *Euthrips* (of Hinds) and *Sericothrips* Haliday. The wings and antennæ

are strongly suggestive of *Scricothrips*, but the abdomen lacks the numerous small spines characteristic of that genus.

Ctenothrips bridwelli n. sp.

Female.—Length 1.75 mm. to 1.9 mm.; width of mesothorax .33 mm. to .37 mm.; greatest width of abdomen .45 mm. to .48 mm. General color very dark brown, thorax lighter.

Head a little longer than wide; equally broad in front and behind; somewhat retracted into the prothorax; sides immediately behind the eyes strongly concave; top and sides behind rough with transverse ridges. Eyes with rather unusually strong hairs between the facets; appearing to protrude strongly on account of the concavities behind

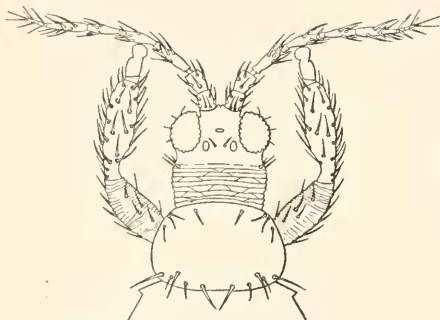


Fig. 1.—Head, prothorax, antennae and forelegs of female.

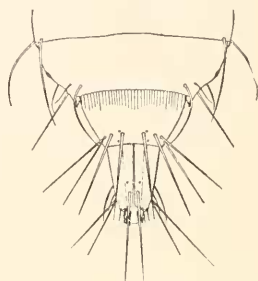


Fig. 2.—End of abdomen.

them. Cheeks, behind these concavities, rather full and rough with ridges. On the hinder border of the postocular concavity, on each side, there are three prominent spines rather closely placed. Ocelli large and well separated; ocellar bristles present, but inconspicuous. Mouth cone rather long and sharp. Antennae about two and one quarter times as long as the head; their bases separated by the notched elevation of vertex; relative lengths of segments as follows:

Number of segment,	1	2	3	4	5	6	7	8
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Spaces of micrometer covering it,	9.5	11	20.5	17.5	14	19	3	5
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Basal two segments much the thickest; spines on most of the segments long and slender; sense organs rather small and inconspicuous. Segment one cylindrical, somewhat thicker at base than at apex; two strongly constricted toward the base; three and four fusiform; five similar in form to four at its base, but quite broad at its apex and rather broadly joined to six, which with style tapers gradually to the tip. Color: one and two rather dark brown; three clear yellow; four yellow, but slightly tinged with brown; five yellow at base, but gradually shading into light brown at apex; six brown; style brown, but lighter than six.

Prothorax but little more than three-fourths as long as the head; nearly one-third of its own width wider than the head; sides well rounded; angles rounded; surface smooth; two long spines at each posterior angle; no long spines at the anterior angles; besides the long spines at the angles, there are six shorter ones arranged in a transverse row near the posterior border, the two middle ones in the row being the longest; there are three short upcurved spines at each of the anterior angles and a single spine near the anterior border on each side, about half way from the angle to the median line. Prothorax concolorous with pterothorax; much lighter than head and abdomen. Mesothorax more than one-fourth its own width broader than the prothorax; metathorax somewhat narrower than mesothorax; meso- and metathorax together slightly more than one and one-half times as long as the prothorax. Surface of mesoscutum strongly reticulate. Wings well developed; somewhat variable in length, usually reaching the anterior border of the seventh abdominal segment; very narrow and slender for length; fore wings only slightly longer than hind ones. Breadth of fore wings at middle only about one-twenty-first their

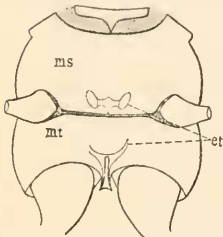


Fig. 3.—Ventral view of pterothorax; *et*, endo-thoracic invaginations; *ms*, mesosternum; *mt*, metasternum.

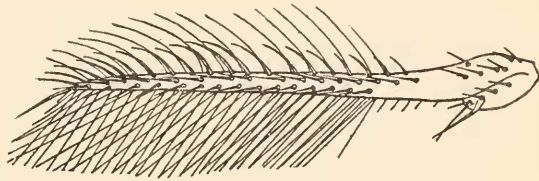


Fig. 4.—Left forewing.

length; the basal fourth of each transparent, the remainder being heavily shaded with brown, especially the middle portion. Two longitudinal, but not prominent veins extend to the tip of each fore wing; spines on the basal portion of the wing light, but on the shaded portion brown; spines on costa of good length and about twenty-five in number; on the fore vein from eighteen to twenty, placed at regular intervals for the most part, but with a considerable gap toward the base of the wing and often with irregular gaps toward the apex; on the hind vein there are from thirteen to fifteen spines also placed regularly for the most part, but usually at greater intervals toward the apex of the wing; the scale bears several spines; costal fringe of fore wings rather slight; posterior fringes moderately heavy and more or less crinkled; surface of wings thickly covered with minute spines. Legs (especially the middle and hind pairs) rather long and slender; quite strongly and evenly spinose, but otherwise unarmed except for a comb-like row of about twelve stronger spines on the

inner side of each posterior tibia. Anterior legs somewhat shorter and stouter than the others. All the femora more or less roughened by encircling ridges; all the tibiæ constricted toward their bases; tarsi long, as broad at their apices as at their bases; anterior and posterior, especially the posterior, coxæ thick and heavy. General color of legs dark brown; tibiæ generally slightly lighter than the femora; tarsi yellowish brown; the very bases of the middle femora and all of the middle trochanters light translucent yellow.

Abdomen at base considerably narrower than the pterothorax; very elongate-ovate in general outline; widest at the fifth and sixth segments; from the posterior border of the seventh segment tapering rather abruptly to the base of the tenth segment; nearly three times as long as broad; surface, when viewed by reflected light, strongly and closely reticulated, both above and below; last two segments less strongly reticulate. Abdomen very dark brown; first segment sometimes lighter; apical portion of the ninth segment and all of the tenth segment always somewhat lighter than the remainder. The sides of the eighth segment sharply dentate with rather coarse teeth on the hind border and strongly produced posteriorly; the posterior margin of the eighth dorsal segment drawn out in such a way as to form comb-like teeth. Spines along sides and around tip of abdomen mostly long, large and conspicuous; those on the ninth segment as a rule larger and heavier than those on the tenth; those at the very apical margin of the tenth small and inconspicuous. Protruding from the apex of segment ten is a peculiar small globular semitransparent organ which is tinged across the middle with brown and bears two small inconspicuous spines. This organ is probably a part of the sheath for the reception of the ovipositor when it is not in use. Attached to each side of the ventral apical margin of the tenth segment is a peculiar flap-like process. These processes are present in other species and are often found, in mounted specimens, strongly inclined toward each other, over and beyond the ventral gap in segment ten and it may be their function to assist as catches in holding the ovipositor in place. Both the globular organ and the flaps here described are present, and under the high powers of the microscope appear prominently, in all the specimens which I have.

Described from five cotypes, two of which are deposited in the collection of the United States National Museum, and the remaining three in the collection of the Massachusetts Agricultural College.

Specimens captured in Bellamy River Swamps, Dover, N. H., on flowers of *Symplocarpus foetidus* Salisb., April 11, 1904, by Mr. J. C. Bridwell, through whose kindness I received them and for whom I name the species.